Impact of the good rainy- year of 2015/2016 over the productivity of crops and livestock in CZWD and the livelihood of Bedouin Community
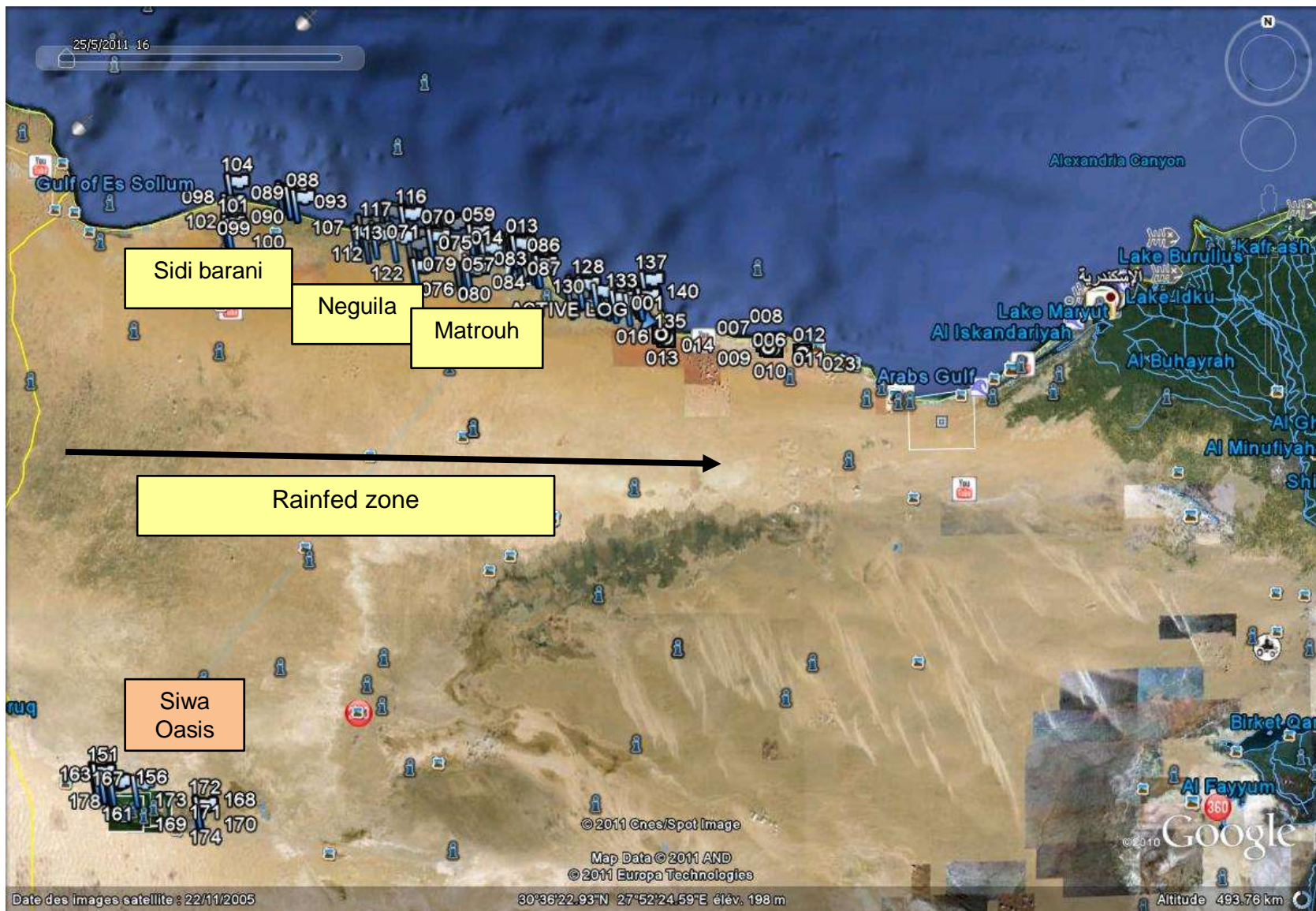
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(Project CLIMED)

1- APRI Animal Production Research Institute, Cairo,

2- DRC Desert Research Center, Cairo,

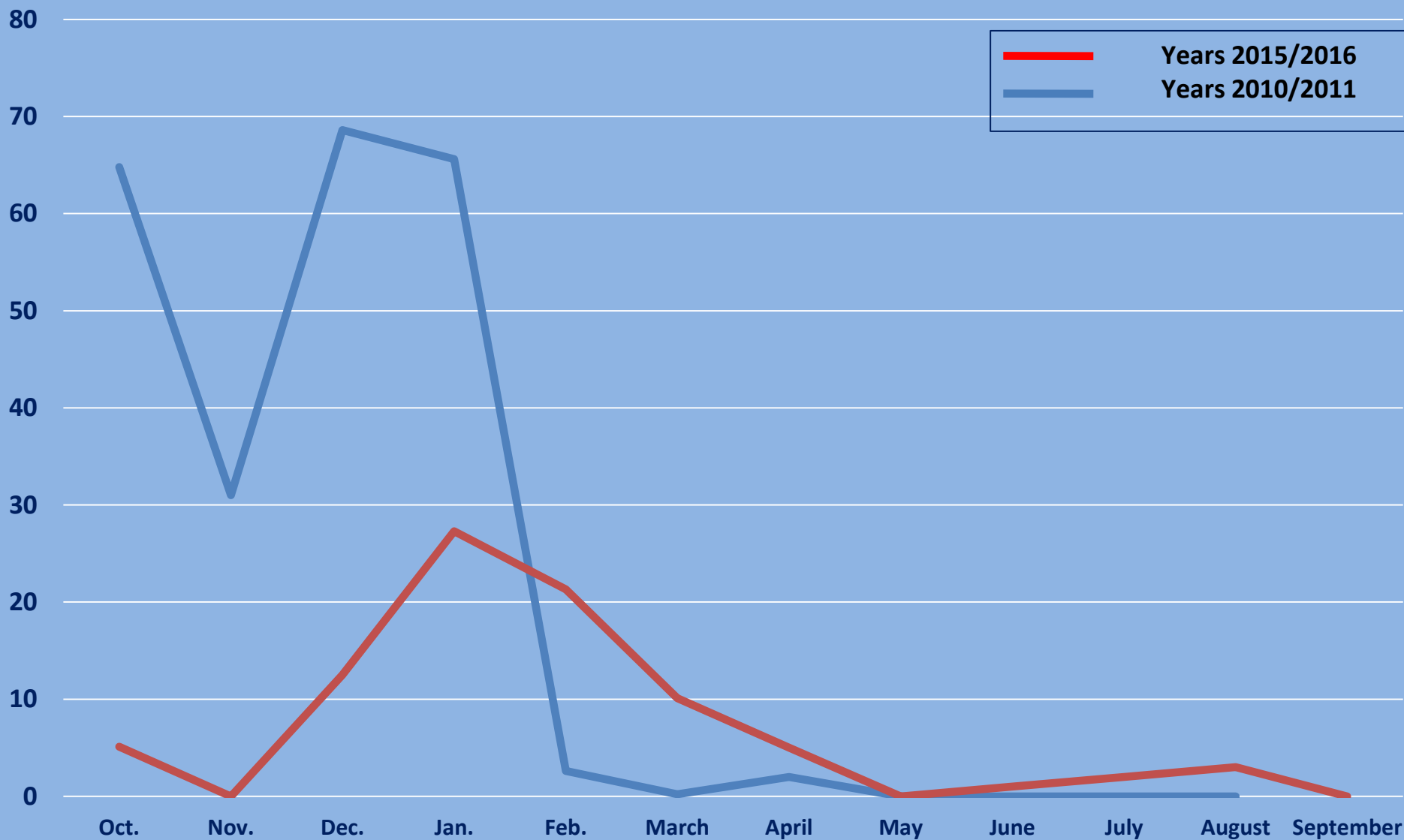3- CIRAD International Centre of agricultural research for development, France

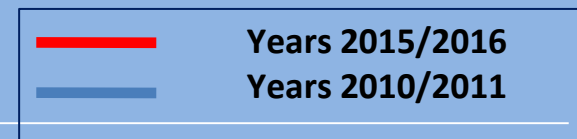# Background

❑ Coastal Zone of Western Desert (CZWD) is a hot dry area with low erratic rainfall (< 150 mm/yr), extends from Alexandria East to the Libyan border for about 500 km.

❑ Temperatures ranged from 39°C in July and August to 5°C in January.

❑ Sheep and Goats, (+some camels) represent the main activity for local community and nutrient requirements for the family (milk and meat).

Rainfall (mm)

Total Rainfall
2015/2016 = 234.8
2010/2011 = 81.3

Years 2015/2016
Years 2010/2011

80
70
60
50
40
30
20
10
0

Oct. Nov. Dec. Jan. Feb. March April May June July August September

The **Objective** of the study is to analyze the impacts of this rainy-year (2015/2016) on the crop-livestock farming system, and the livelihood of the Bedouin community (as declared by the breeders through field survey).

Materials & Methods

The studied area consisted of:

1. • Matrouh zone,

2. • Neguila zone,

3. • Sidi Barani zone

A field survey was implemented in 2016 (from March to May) for 60 breeders; 31 in the Matrouh region, 16 in the Neguila and 13 in Sidi Barani region.

The field survey was based on a technical and socio-economic questionnaire which comprises to:

1 • Land and cropping system

2 Livestock structure, range status, grazing practices, feeding and management

3 • Animal performance and marketing

4 • Constraints and perception of climatic changes

Results & Discussion

Table 1. Numbers of Bedouins over different types of lands in rain-fed area 2016

Area	No	Rainfed	Wadi+ Rainfed	Rainfed+ Pasture	Wadi+ Rainfed+ Pasture
Matrouh	30+1has Wadi	1	9	3	17
Neguila	16	2	4	-	10
Barani	13	1	4	2	6
Total	60	4	17	5	33

Table 2. Change land tenure in 2011 vs. 2016 in rain-fed area (Fed.)

Area	Wadi 2016	Change %	Rainfed 2016	Change (%)	Pasture 2016	Change (%)
Matrouh	6.9	0.33	37.7	-2.57	41.8	-1.26
Neguila	7.5	-13.5	66.9	-0.31	28.3	11.25
Barani	1.9	0.37	20.6	7.31	13.7	2.92

Table 3. Barley production in year 2015 vs. year 2016 in rain-fed area.

Area	Total production/Fed		Production cost/Fed		Income		Revenue	
	2015	2016	2015	2016	2015	2016	2015	2016
Matrouh	1.5	2.3	177	345.8	91.8	424.9	-78.9	82.7
Neguila	1.6	2.5	227.6	295.1	91.3	473.5	-136.4	223.4
Barani	0	3.1	115.8	254.1	0	611.4	-115.8	357.3

Table 4. Olive production in year 2015 vs. year 2016 in rain-fed area.

Area	Production cost/Fed		Total production		Income		Revenue	
	2015	2016	2015	2016	2015	2016	2015	2016
Matrouh	712.7	991.2	865	1585	3241.4	6516.2	2474.2	5432.9
Neguila	693.3	930	949	1550	2261.7	4685.6	1568.3	3879.1
Barani	775	806.3	861.3	1156.3	3631.3	4214.3	2887.5	3378.6

Table 5. Fig production in year 2015 vs. year 2016 in rain-fed area.

Area	Production cost/Fed		Total production/Fed		Income		Revenue	
	2015	2016	2015	2016	2015	2016	2015	2016
Matrouh	1432.1	1720.7	2340.9	3126.1	8393.5	11258.9	6933.9	9482.9
Neguila	783.6	1134.1	1464.4	3260	3415	7797	2588	6555.5
Barani	910	1016.3	1267.5	2100	5000	7500	3100	5600

Table 6. Flock size development for sheep/farm in year 2015 vs. year 2016 in rain-fed area.

Area	Flock size		Difference from 2016 %	Ewe lambs		lambs	
	2015	2016		2015	2016	2015	2016
Matrouh	90.8	106.1	14.4	18.0	24.3	19.4	22.2
Neguila	127.1	131.5	3.3	23	23.3	28.1	32.3
Barani	80.7	76.9	-4.9	19.2	18.6	15.5	13.9

Table 7. Flock size development for goats/farm in year 2015 vs year 2016 in rainfed area.

Area	Flock size		Difference from 2016 (%)	Doe kids		Kids	
	2015	2016		2015	2016	2015	2016
Matrouh	36.8	34.7	-6.1	11.2	8.8	9.5	10.1
Neguila	31.9	32	0.3	6.3	6.1	4.9	5.9
Barani	27.7	36.1	23.3	5.8	9.8	6.3	10

Table 8. Performance indicators for sheep and goats in year 2015 vs. year 2016 in rain-fed area.

Area	Lambs born/ewe/year		Lamb mortality (%)		Kids born/doe/year		Kid mortality (%)	
	2015	2016	2015	2016	2015	2016	2015	2016
Matrouh	0.92	0.98	16.3	11.2	1.55	1.50	11.1	10.4
Neguila	0.81	0.92	11.8	7.9	1.12	1.23	11.4	6.9
Barani	0.83	0.83	9.7	11.6	0.81	1.43	2.7	11.9

Table 9 Supplementary feeding (SF) for grazing sheep flocks

Area	Grazing flocks				No of breeders using SF during grazing		SF during grazing (kg/head/day)		SF out of grazing (kg/head/d)	
	Grazing period range (mon.)		Distance from pasture (km)							
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Matrouh	0-3	2-6	0-10	0-70	6	2	1.03	1.0	0.99	0.99
Neguila	0-3	2-7	0-40	2-50	10	5	1.02	1.2	0.89	0.92
Barani	0-3	2-4	2-10	1-70	2	1	1.13	1.25	0.92	0.92

Table 10 Marketing strategy in year 2015 vs. year 2016 in rain-fed area.

Area	No of fattened lambs 15/16		Fattened lambs price 15/16		No of fattened kids 15/16		Fattened kids price 15/16	
	Sheep				Goats			
Matrouh	12.5	38.3	1295	1457	0	10	570	638
Neguila	19	17.7	1310	1500	4	3	800	750
Barani	7	7	1350	1200	7	6	550	1200

2010/2011

2015/2016

Hand Harvesting

Barley

Machinery Harvesting

2010/2011

Fig trees

2015/2016

2010/2011

Olive trees

2015/2016

Conclusion

❑ **100% of the breeders in the rainfed area stated that rainfall is considered the most important factor for their livelihood.**

❑ **Drought is the major constraint faced the breeders for cropping system and livestock.**

❑ **Barley did not achieve any profit for the Bedouin in 2015, unlike the situation in 2016.**

- ❑ **Fruit trees** realized high revenues, estimated as **60%** of the income in **drought year** and more than **80%** in **rainy year**, which was reflected on the Bedouin community.

- ❑ **Fattening activity** started in few numbers of lambs and kids and its expected will increase in **2016**.

- ❑ Finally, Bedouins can be utilized high profitability of different practices in a good rainy year.

شكرا

Спасиδ   Köszönöm   Ευχαριστω

Děkuji   Dakujem   Obrigado

Teşekkür ederim

Thank You !

Tack   Danke Dziękuję   Merci

Grazie